

Claims

1. A fertile transplastomic leguminous plant.
- 5 2. The fertile transplastomic leguminous plant as claimed in claim 1, characterized in that it is soybean.
- 10 3. The fertile transplastomic leguminous plant as claimed in either of claims 1 and 2, characterized in that it comprises at least one expression cassette inserted into a plastome intergenic region.
- 15 4. The fertile transplastomic leguminous plant as claimed in claim 3, characterized in that said plastome intergenic region is located between the TrnV gene and the rps12/7 operon.
- 20 5. The fertile transplastomic leguminous plant as claimed in one of claims 2 to 4, characterized in that said expression cassette is inserted between the soybean plastome sequences corresponding to the identifiers SEQ ID No.1 and SEQ ID No.2.
- 25 6. The fertile transplastomic leguminous plant as claimed in one of claims 1 to 5, characterized in that said expression cassette comprises, functionally linked to one another, at least one promoter which is functional in plastids from plant cells, a sequence encoding a protein and a terminator which is functional in plastids from plant cells.
7. A transformation vector suitable for leguminous plant plastid transformation, characterized in that it comprises at least two sequences homologous with a zone of the plastome of the leguminous plant to be transformed, said homologous sequences bordering at least one expression cassette.
- 30 8. The vector as claimed in claim 7, characterized in that the two sequences homologous with a zone of the plastome of the leguminous plant to be transformed correspond to sequences which allow integration of the expression cassette into a plastome intergenic region.
- 35 9. The vector as claimed in either of claims 7 and 8, characterized in that said zone corresponds to the region of the ribosomal RNA operon of the plastome.
10. The vector as claimed in claim 9, characterized in that one of the two homologous sequences comprises the genes encoding 16S ribosomal RNA (16SrRNA) and the Valine transfer RNA (TrnV), and in that the other homologous sequence comprises the intergenic region located between the TrnV gene and the rps12/7 operon.

11. The vector as claimed in claim 10, characterized in that the homologous sequence comprising the genes encoding the 16S ribosomal RNA (16SrRNA) and the Valine transfer RNA (TrnV) is represented by the sequence identifier SEQ ID No.1, and in that the homologous
5 sequence comprising the intergenic region located between the TrnV gene and the rps12/7 operon is represented by the sequence identifier SEQ ID No.2.

12. The vector as claimed in either of claims 10 and 11, characterized in that the homologous sequence comprising the genes encoding the 16S ribosomal RNA (16SrRNA) and the Valine
10 transfer RNA (TrnV) is positioned 5' of the expression cassette, and in that the homologous sequence comprising the intergenic region located between the TrnV gene and the rps12/7 operon is positioned 3' of the expression cassette.

13. The vector as claimed in one of claims 7 to 12, characterized in that said homologous
15 sequences border, in addition to an expression cassette comprising a sequence encoding a protein of interest, at least one other expression cassette comprising a sequence encoding a selection marker.

14. A method for obtaining fertile transplastomic leguminous plants, characterized in that it
20 comprises the steps of:

- (a) transforming embryogenic tissues obtained from immature embryos of leguminous plants with a vector suitable for plastid transformation,
- (b) selecting the transformed tissues,
- (c) regenerating fertile transplastomic plants from the transformed tissues.

25 15. The method as claimed in claim 14, characterized in that the method of transformation used is the "particle bombardment" method.

30 16. The method as claimed in either of claims 14 and 15, characterized in that the vector suitable for plastid transformation is a vector as claimed in one of claims 7 to 13.